

WHAT IS CLAIMED IS:

1. A method for forming a capacitor comprising:
a first step for forming an amorphous silicon film so as to cover hole-type or island-type core pattern formed on a substrate,

a second step for removing said amorphous silicon film so that said amorphous silicon film remains on the side wall of said core pattern to thereby form a cylindrical bottom electrode having the peripheral wall that is said amorphous silicon film remaining on the side wall of said core pattern,

a third step for removing said core pattern by means of etching,

a fourth step for removing the natural oxide film formed on the surface of said bottom electrode and the amorphous silicon surface layer that is the component of said bottom electrode by means of etching, and

a fifth step for forming semispherical silicon grains on the surface of said bottom electrode.

2. The method for forming a capacitor as claimed in claim 1, wherein in said fourth step a strong alkaline aqueous solution is used for wet etching.

3. The method for forming a capacitor as claimed in claim 1, wherein in said fourth step dry etching is

applied.

4. A method for forming a capacitor comprising:

a first step for forming an amorphous silicon film so as to cover hole-type or island-type core pattern formed on a substrate,

a second step for removing said amorphous silicon film so that said amorphous silicon film remains on the side wall of said core pattern to thereby form a cylindrical bottom electrode having the peripheral wall that is the said amorphous silicon film remaining on the side wall of said core pattern,

a third step for removing said core pattern by means of etching,

a fourth step for removing the surface layer of said bottom electrode by use of an aqueous mixture solution containing nitric acid and hydrofluoric acid, and

a fifth step for forming semispherical silicon grains on the surface of said bottom electrode.